

Date: Tue, 25 Oct 94 04:30:22 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: List
Subject: Ham-Ant Digest V94 #355
To: Ham-Ant

Ham-Ant Digest Tue, 25 Oct 94 Volume 94 : Issue 355

Today's Topics:

Advice needed for loss in BNC<->S0-239 connector
ARTICLE BY JOSEPH M. BOYER
Best wire for dipoles? (2 msgs)
Beverage antennas
Ham-Ant Digest V94 #354
Phased array antennas
where do I go for local antenna laws

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 24 Oct 1994 16:32:07 -0700
From: rdcole@crl.com (Ron Cole)
Subject: ### Advice needed for loss in BNC<->S0-239 connector

Teh Aik Wen (s2202629@np.ac.sg) wrote:

: I was wondering, how much 'losses' would I face if I went ahead and used the
: BNC, followed by this connector? Reason why I want to do this is because I'm
: having difficulty in finding the S0-239 (single hole, rear mount).

All things considered the BNC is a better connector than the S0-239.
Don't worry about the connector it the physice of the antenna that count
not what connector you use to connect the coax.

Ron Cole Internet:rdcole@crl.com ICBM:29 31.03 N
N5HYH CIS:70325,102 98 25.55 W

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AX25:N5HYH @ K3WGF.STX.NA

Date: Mon, 24 Oct 94 19:51:53 PDT
From: smb@noner.abb.no
Subject: ARTICLE BY JOSEPH M. BOYER

Some weeks ago I saw a message from someone that could provide copies of an article by Joseph M. Boyer, probably from Ham Radio April/May 1977. I just discovered that I have filed part 1, but part 2 are missing. Could the person with these copies please put a note in this group.

73 de LA6ZK

(Sverre Magnus Berg)

Date: 24 Oct 1994 19:38:31 GMT
From: johnrau@rb.unisys.com (John Rau)
Subject: Best wire for dipoles?

Mike Staples (fa419@cleveland.Freenet.Edu) wrote:

: For 1/2 wavelength wire dipoles in the 10 - 80 meter range, what's the best
: type of wire to use? Solid? Stranded? Insulated? Non-insulated? Also, what's
: "Copperweld" and what does "hard drawn" mean?

Solid vs. Stranded -- shouldn't make any difference electrically.
Stranded can be bent repeatedly more without breaking.

Insulated vs. Non-insulated -- Shouldn't make any difference electrically.
Insulation just adds extra weight and wind resistance.

Copperweld wire has a steel core with a thick copper coating (not just plating). The result is good strength and low resistance. This is a wise choice for long antennas (e.g. 80 meters) or where the antenna is supporting a heavy feedline.

Hard Drawn is a type of copper which has greater mechanical strength (but less tolerance for repeated bending). I'll leave the technical details to a metallurgist. This is

definitely better than ordinary soft copper for all but
very short antennas.

John - W6PSK

Date: Mon, 24 Oct 1994 12:05:28 GMT
From: burke_br@adcae1.comm.mot.com (Bruce Burke)
Subject: Best wire for dipoles?

In article 594@aurora.mil.wi.us, garyk9gs@solaria.mil.wi.us (Gary T. Schwartz)
writes:

{Mike Staples (fa419@cleveland.Freenet.Edu) wrote:

{

}

{: For 1/2 wavelength wire dipoles in the 10 - 80 meter range, whats the best

{: type of wire to use? Solid? Stranded? Insulated? Non-insulated? Also, what's

{: "Copperweld" and what does "hard drawn" mean?

}

}

{: Thanks!

}

Mike,

Also take a look at your local building codes. The South Florida Bldg code
specifies copperweld. This is a copper plated, steel wire. Very strong
compared to just copper, but it does have a limited life due to corrosive
elements eating the copper off the steel.

73,

Bruce, WB4YUC

Date: Mon, 24 Oct 1994 13:21:45 -0400
From: steve@hi.com (Steve Byan)
Subject: Beverage antennas

In article <321_9410221145@unique.pronet.com>,
Dave.Headland@f725.n635.z3.fidonet.org (Dave Headland) wrote:

> Has anyone come up with a convenient way of remotely varying the resistance
> of the termination to earth from the far end of a beverage antenna, from the
> receiver end? I've been playing with an idea of using photocells, controlled
> by LEDs, but have come up with a problem of too much resistance in the
> antenna wire.

I use a incandecent lamp/photocell arrangement from EG&G Vactec. The incandescent lamp is more resistant to damage from electrostatic discharge than LEDs. I find that I still need a gas-discharge tube (an NE-2 neon lamp) to prevent burn-out by thunderstorms. The CdS photocell is a pretty pure resistor at low HF, and it's pretty rugged compared to a FET. Vactec has some that have fairly low resistance (100 ohms or so) when full-on, have fairly small temperature coefficients, and not too long a memory.

>

> The beverages I've been using varying from around 750 metres to around
> 2000 metres in length. Using twin-flex cable the resistance is roughly
> 45 ohms per 250 metres, so at 2000 metres you have roughly 360 ohms - too
> much resistance for several (approx 5) LEDs to operate from a 12 volt
> battery.

Are your beverages for MW? They're quite long even for low-band HF. My experience is with short tropical-band Beverages (100 to 175 meters) used for SWL DXing.

What is twin-flex cable? Why so many LEDs?

I use two methods. Method #1 is to use #24 guage stranded twisted pair (alarm wire) for the antenna, along with appropriate chokes and coupling and DC blocking capacitors. This uses the antenna pair as the DC feed and return. This method is well-suited for DXpeditions, where an extensive ground system is not possible.

Method #2 is a single-wire DC feed with return through the ground system. I use a voltage-doubler off a 24VAC transformer, which delivers about 60 Volts no-load (careful, this is a dangerously high voltage). I meter the current and adjust it with a rheostat. I use a voltage vs current calibration curve for the photocoupler to avoid burning out the 12V lamp. I considered using a more sophisticated constant-current control system, but rejected the idea because I felt it would be too vulnerable to lighting strikes.

I use one or more 8 foot ground rods at each Beverage termination. For most of my Beverages, the earth ground has too high a resistance, so I run a 24 guage ground return wire from the termination end of the Beverage to a central ground point (they're actually part of the ground radials for my inverted-L). I live on a ridge in New England, so the soil has very poor conductivity.

The only Beverage which successfully uses an earth return is terminated in a swampy area. I notice that connecting the AC mains ground to my antenna ground system about halves the resistance to that Beverage; my AC mains ground connects to a 100 meter deep steel well casing. I've never made any ground resistance measurements that I believe, since I use a DC control

voltage, and the considerable electrolytic activity of the fairly acidic ground water gives widely-varying resistance measurements, depending on the polarity of the DC control voltage. I should make some AC measurements sometime.

> Rather than use additional batteries to boost the voltage, I'm after a
> circuit that could perhaps take advantage of the high resistance and
> adjust the bias of a transistor (controlling the LEDs) at the terminated
> end. The 12 volt battery doesn't necessarily have to be at the receiver.

A very good idea! How about transformer-coupling an audio or supersonic control frequency to a rectifier/filter, and then to a power-transistor connected as a voltage-controlled constant current source? I shy away from connecting any semiconductor device directly to a Beverage. The transformer should give you some isolation from ESD, and a few stages of L-C filtering in the power supply should provide the rest to keep the transistor alive.

>
> Sooner or later I will be restricted to using single core cable for the
> antenna, and will need to control the LEDs with a return circuit through
> the ground back to the receiver. I am not sure what resistance this involves
> but I suspect several hundred k-ohms, if not meg-ohms.

In my experience, you'll need to stay with two wires (especially at the antenna lengths you are considering) unless you have very conductive soil.

Regards,
-Steve

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Date: 24 Oct 94 18:10:09 GMT
From: Waltk@pica.army.mil
Subject: Ham-Ant Digest V94 #354

Dave writes:

>Has anyone come up with a convenient way of remotely varying the resistance
>of the termination to earth from the far end of a beverage antenna, from the
>receiver end?

A novel approach I've heard of is to use an baking timer mechanically linked to a 500 ohm carbon composition pot in series with a 200 ohm resistor. You set the timer so that the pot is at the end of its travel, minimum resistance. This will give you sufficient time to get back to the rig. Quickly run back to the shack and tune your rig to a broadcast station that is off the back end of the beverage and watch your S-meter. Note the time (relative to when the timer was started) at which minimum signal occurs. This coincides with maximum F/B. Measure the corresponding resistance of the pot, add 200 ohms (or whatever value of fixed resistor you used) and replace the pot with a non-inductive resistor of this value. GL & have fun listening to submarines.

.....
73 de Walt Kornienko - K2WK Internet: waltk@pica.army.mil
DX PacketCluster: K2WK > W3MM Packet: K2WK@N2ERH.NJ.USA.NOAM
<> Member: Franford Radio Club <<<>>> #1 Contest Club In The World <>

Date: Mon, 24 Oct 1994 17:17:27 GMT
From: "Jeff Cauhape" <cauhape@twg.com>
Subject: Phased array antennas

Hi,

Can anyone recommend an intro text on phased array antenna design? Any help would be appreciated.

Jeff Cauhape KB6TDU.

Date: 24 Oct 94 11:59:14 CDT
From: demers@labman.cray.com (Larry DeMers)
Subject: where do I go for local antenna laws

In article <jeffp.782736625@access3> jeffp@access3.digex.net (Jeff Poretsky) writes:

>Hoping for some help:

>

>I Don't want to deal with a runaround with my community.

>Which Municipal office do I contact to find out about antenna laws?

>

>

>Thanks

>

>n2top

Contact your local zoning office. They should have the info.

Good Luck!

Larry

End of Ham-Ant Digest V94 #355
